

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Amendment of Parts 1, 21, 73, 74 and 101 of the)	WT Docket No. 03-66
Commission's Rules to Facilitate the Provision of)	RM-11614
Fixed and Mobile Broadband Access, Educational)	
and Other Advanced Services in the 2150-2162)	
and 2500-2690 MHz Bands)	

Comments of Clearwire Corporation

Clearwire Corporation ("Clearwire"), in response to the Fourth Further Notice of Proposed Rulemaking ("FNPRM") adopted and released by the Federal Communications Commission ("FCC" or "Commission") on May 24, 2011 in the above-referenced matter¹ hereby submits its comments in support of the proposed changes to Section 27.53(m) of the Commission's rules proposed by the Wireless Communications Association International ("WCAI").

I. Background

Clearwire is the nation's leading provider of 4G wireless broadband network services, providing high-speed mobile Internet and residential access services, as well as residential voice services, in communities throughout the country. It is the leader in WiMAX 4G, currently the leading 4G standard in the world. Clearwire's 4G network now reaches 130 million people in the U.S. and covers over 70 of the top U.S. markets. Clearwire ended the first quarter of 2011 with approximately 6.15 million total subscribers consisting of 1.29 million retail subscribers and 4.86 million wholesale subscribers.

¹*In the Matter of Wireless Communications Association Int'l Petition to Amend Section 27.53(m) of the Commission's Rules*, Public Notice, RM-11614 (rel. Nov. 4, 2010).

Clearwire currently markets its 4G service through its own brand called CLEAR® as well as through its 4G wholesale relationships with, among others, Sprint Nextel Corporation, Comcast Corporation, Time Warner Cable Inc., Best Buy and Bright House Networks, LLC. Clearwire is an active participant in the global 3rd Generation Partnership Project (3GPP) and where LTE and future WiMAX standards applicable to the 2.5 GHz band are developed on a consensus basis.²

From Clearwire's perspective, the rule changes proposed by WCAI would permit greater and more efficient use of the 2.5 GHz band, and improved throughput and speeds to consumers, regardless of the technology choice of the carrier. The improvements to speed and performance from moving to a wider channelization plan is not merely theoretical. Clearwire has launched technology trials in Phoenix, AZ to test a paired 20 MHz configuration, which is twice the channel size currently used in its 4G WiMAX deployments. Initial results from the test confirm the capability of Clearwire to achieve of 90 Mbps using 20 MHz channels, a speed that cannot be reached using today's 10 MHz blocks. While real world speeds on a loaded network will be lower, the tests confirm that larger channel sizes support significantly faster speeds and performance.³ One impediment, however, to the deployment of larger channel sizes is the outdated OOB rules that WCAI's proposal seeks to revise.

II. Discussion

² The 3rd Generation Partnership Project is a consensus-driven international partnership of telecommunications standards bodies.

³ Press Release, Clearwire Corp., Clearwire Announces New 4G LTE Technology Trials Expected to Yield Unmatched Wireless Speeds in the U.S. (Aug. 4, 2010) (available at <http://corporate.clearwire.com/releasedetail.cfm?RELEASEID=551055&>).

In its October 22, 2010 Petition for Rulemaking (“WCAI PFR”), WCAI asked that the Commission amend its rules governing out-of-band-emission (OOBE) limits for mobile digital stations in the 2.5 GHz band to accommodate the use of the wider channel bandwidths. Specifically, WCAI asked that the Commission relax slightly the OOBE limits for mobile digital stations in section 27.53(m)(4) from $43 + 10 \log (P)$ dB to $40 + 10 \log (P)$ dB at the channel edges, and impose a $43 + 10 \log (P)$ dB attenuation factor beyond 5MHz from the channel edges, and a $55 + 10 \log (P)$ dB attenuation factor at “X” MHz from the channel edges where “X” is the greater of 6 MHz and the actual channel bandwidth. WCAI also requested that the Commission allow a resolution bandwidth of 2 percent for mobile digital stations in section 27.53(m)(6). In its FNRPM, the Commission specifically seeks comment on whether it should modify the out-of-band emission limits as requested by WCAI.⁴

Clearwire supports the proposed rule change and agrees with WCIA that amending the OOBE limits in the 2.5 GHz band as requested is necessary to realize the full benefits of 4G technologies and better align the Commission’s rules with the approach of the global 3GPP and future WiMAX standards applicable to the 2.5 GHz band.⁵ Providing for operation of wider channel bandwidths will promote efficient use of the spectrum and help achieve the goals of the National Broadband Plan for mobile broadband. Harmonizing the Commission’s rules with the applicable 3GPP standard and future WiMAX standards will enable manufacturers and network operators to realize enormous economies of scope and scale in 2.5 GHz mobile devices, which would otherwise need to be customized for use in

⁴ FNPRM at §§ 11-13.

⁵ See 3GPP TS 36.101 V8.7.0 (2009-09).

the United States. In addition, Clearwire also agrees with WCAI that the proposed changes are necessary to:

- allow operators to provide the full uplink capacity available in 20 MHz or wider channels, which would greatly enhance spectrum efficiency and broadband throughput; and
- achieve a reasonable balance between smartphone design issues (e.g., size and battery life) and the spectral efficiency of wider channel bandwidths, and thus fulfill the promise of 4G technologies.

As the Commission notes, the proposed rule is not limited to 20 MHz channels and international standards bodies are contemplating the use of wider channels.⁶ The Commission asks whether the proposed rule is suitable for channels wider than 20 MHz. Because the proposed rule scales linearly across any bandwidth, it can accommodate future carrier-aggregation features under consideration internationally for devices operating pursuant to channelization plans of greater than 20 MHz. The Commission should, therefore, adopt the proposed OOB rule and not limit it to 20 MHz channels.

The Commission also asks whether, in connection with the proposed rule changes, it should consider adopting additional measures of protecting against interference to adjacent bands by, for example, establishing stricter OOB limits at the band edges of the 2.5 GHz allocation.⁷ Clearwire opposes this proposal because it would undo many of the benefits stemming from the OOB change. For example, it would establish an OOB framework that would be unique to the United States and that would deviate from international standards. This would eliminate one of the primary benefits of the change, which is to enable manufacturers and network operators to realize enormous economies of

⁶ FNPRM at §17.

⁷ *Id.* at §16.

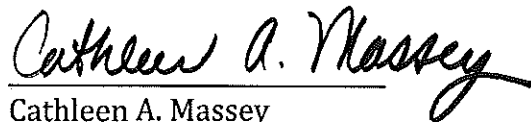
scope and scale in 2.5 GHz mobile devices, which would otherwise need to be customized for use in the United States. As WCAI has explained, the likelihood of heightened adjacent band interference is remote, and processes are already in place to handle any adjacent band interference issues. Clearwire therefore urges the Commission to implement the changes to the OOB limits as proposed by WCAI and without additional or different limits at the 2.5 GHz band edges.

III. Conclusion

Clearwire supports adoption of the modifications to the OOB rule proposed by WCAI and agrees with WCAI that granting the Petition is necessary to facilitate the rapid deployment of 4G mobile broadband services in the 2.5 GHz band nationwide.

Respectfully submitted,

CLEARWIRE CORPORATION

A handwritten signature in black ink, reading "Cathleen A. Massey". The signature is written in a cursive style with a horizontal line underneath the name.

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